ORDER NO. EMID861135

Service Manual

Digital Disk Recorder

SY-FD5

(EN), (EI), (EH), (EB), (EF), (EZ), (EW), (EL), (EP), (EK), (MC), (XT), (XL), (XR), (XS), (X), (XX), (XV)

AREAS

(EN):	Norway, Sweden, Denmark	(MC):	Canada
(EI):	Italy	(XT):	Taiwan
(EH):	Holland	(XL):	New Zealand
(EB):	Belgium	(XR):	Australia
(EF):	France, Austria	(XS):	Malaysia, Singapore, South Africa
(EZ):	Germany	(X):	the Middle East, Hong Kong, the Philippines, Indonesia
(EW):	Switzerland		
(EL):	Finland		
(EP):	Spain	(XV):	Venezuela, Ecuador, Panama
(EK):	the United Kingdom	(XX):	Peru, Chile

The SY-FD5 allows you to record your play on the Technics organ onto a Technics Digital Memory Disk (floppy disk) for easy playback. The SY-FD5 is designed for exclusive use with the Technics organ.

Specifications

Storage Medium:	3.5-inch micro floppy disk
Controls:	Fullband Setting Computer, Access, Eject, Power, Pilot lamp
Power Requirement:	12W AC 100V~120V 50/60Hz AC 220V~240V 50/60Hz
Dimensions (W×H×D):	20.0cm (7-7/8")×7.5cm (2-15/16")×18.0cm (7-3/32")
Net Weight:	1.7kg (3.7 lbs)
Operating Conditions:	
Temperature:	10°C~40°C (50°F~104°F)
Humidity:	20%~80%
Accessories:	Digital memory disk SY-D1 ×1

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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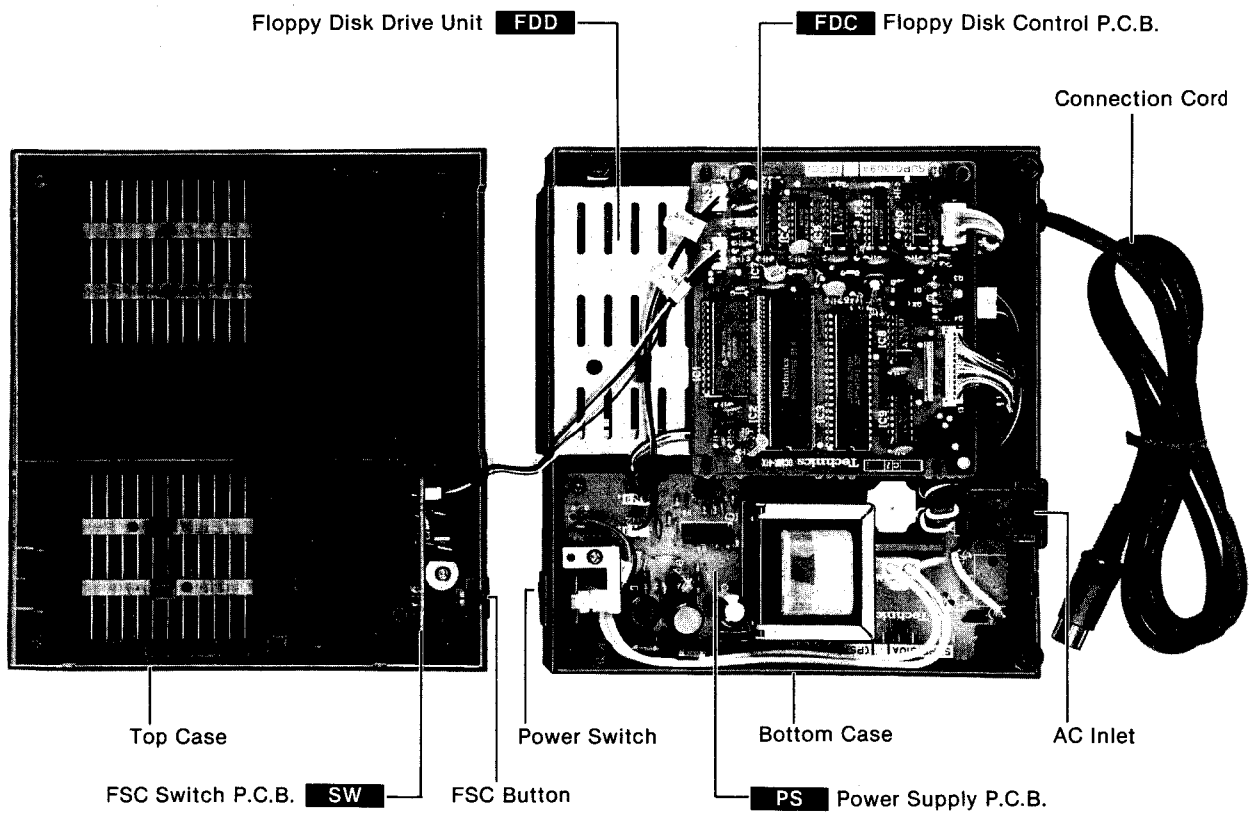
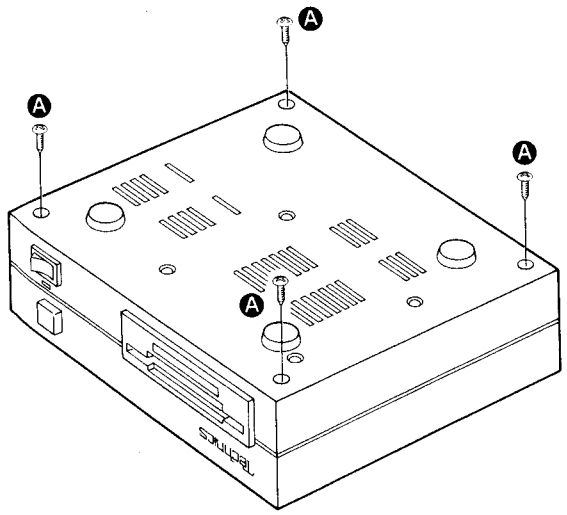
PRINTED CIRCUIT BOARD AND PARTS LOCATION



DISASSEMBLY INSTRUCTIONS

1. How to remove the cabinet [Fig.-1]

a) Remove the 4 screws Ⓐ on the bottom case.
b) Lift the bottom case and open it to the front of the cabinet.



[Fig.-1]

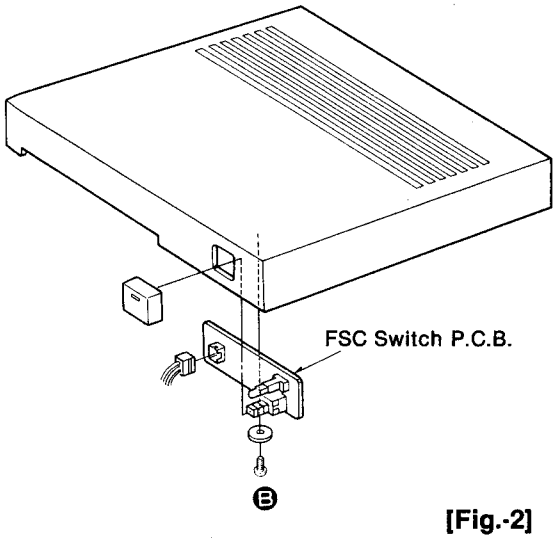
2. How to remove the printed circuit boards

* Open the cabinet and disconnect the connector on the printed circuit boards.

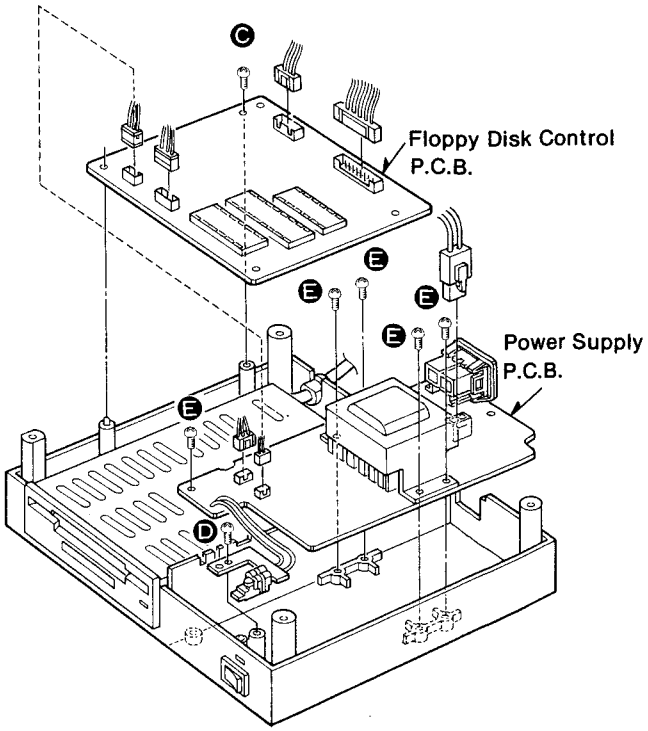
■ FSC switch (SW) P.C.B. [Fig.-2]
- Pull out the FSC button, and remove the screw Ⓑ which fasten the FSC switch P.C.B.

■ Floppy disk control (FDC) P.C.B. [Fig.-3]
- Remove the screw Ⓒ which fasten the floppy disk control P.C.B.

■ Power supply (PS) P.C.B. [Fig.-3]
- Remove the screw Ⓓ which fasten the power indicator (LED).
- Remove the 5 screws Ⓔ which fasten the power supply P.C.B.



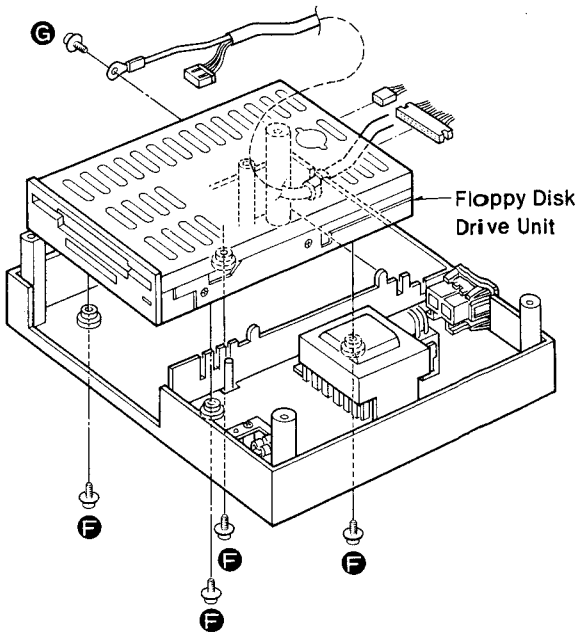
[Fig.-2]



[Fig.-3]

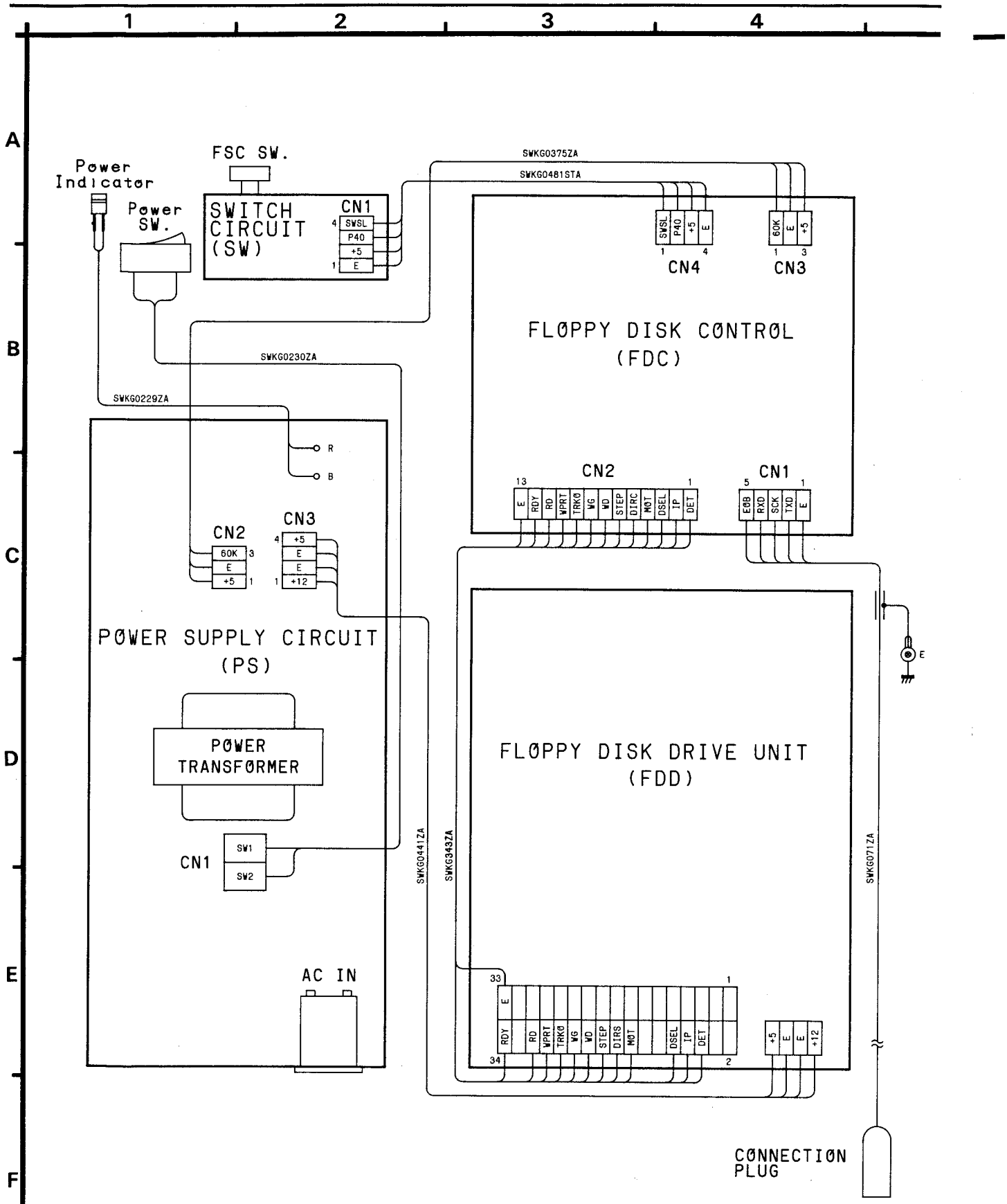
3. How to remove the floppy disk drive unit [Fig.-4]

a) Remove the floppy disk control P.C.B. according to step 2.
b) Remove the 4 screws Ⓕ on the bottom case.
c) Remove the screw Ⓖ which fasten the earth terminal, and pull out the connector.
The floppy disk drive unit can be removed.



[Fig.-4]

WIRING CONNECTION DIAGRAM



SCHEMATIC DIAGRAM

1 2 3 4 5 6 7 8 9

A B C D E F

FDC

Floppy Disk Controller

8K Byte RAM

Micro Computer

IC1 IC2 IC3

Noise Filter

CN3 60K E +5

Preset Counter

Divider IC4-2 IC4-1

8MHz Oscillator

Monostable Multivibrator

IC5 IC6 IC7-1 IC7-2 IC7-3 IC7-4 IC7-5 IC7-6

IC8-1 IC8-2 IC8-3 IC8-4

IC9-1 IC9-2

IC10

IC11

4.5MHz

CN4 E +5 P40 SWSL

SW

Q1 Q2 Q3 Q4

D1 FSC Indicator

FSC SW.

CN1 E +5 P40 SWSL

FDD

DIGITAL DISK DRIVE UNIT

CN2 E RDY RD WPRT TRKO WG WD STEP DIRC MOT DSEL IP DET

CN1 EOB RXD SCK TXD E

SERIAL BUS

JACK

+12 E E +5

PS

Power SW

AC IN

CN1 SW2 SW1

Power Transformer

+12V Regulator

+5V Regulator

IC1-1 IC1-2

CN3 +12 E E +5

Power Indicator

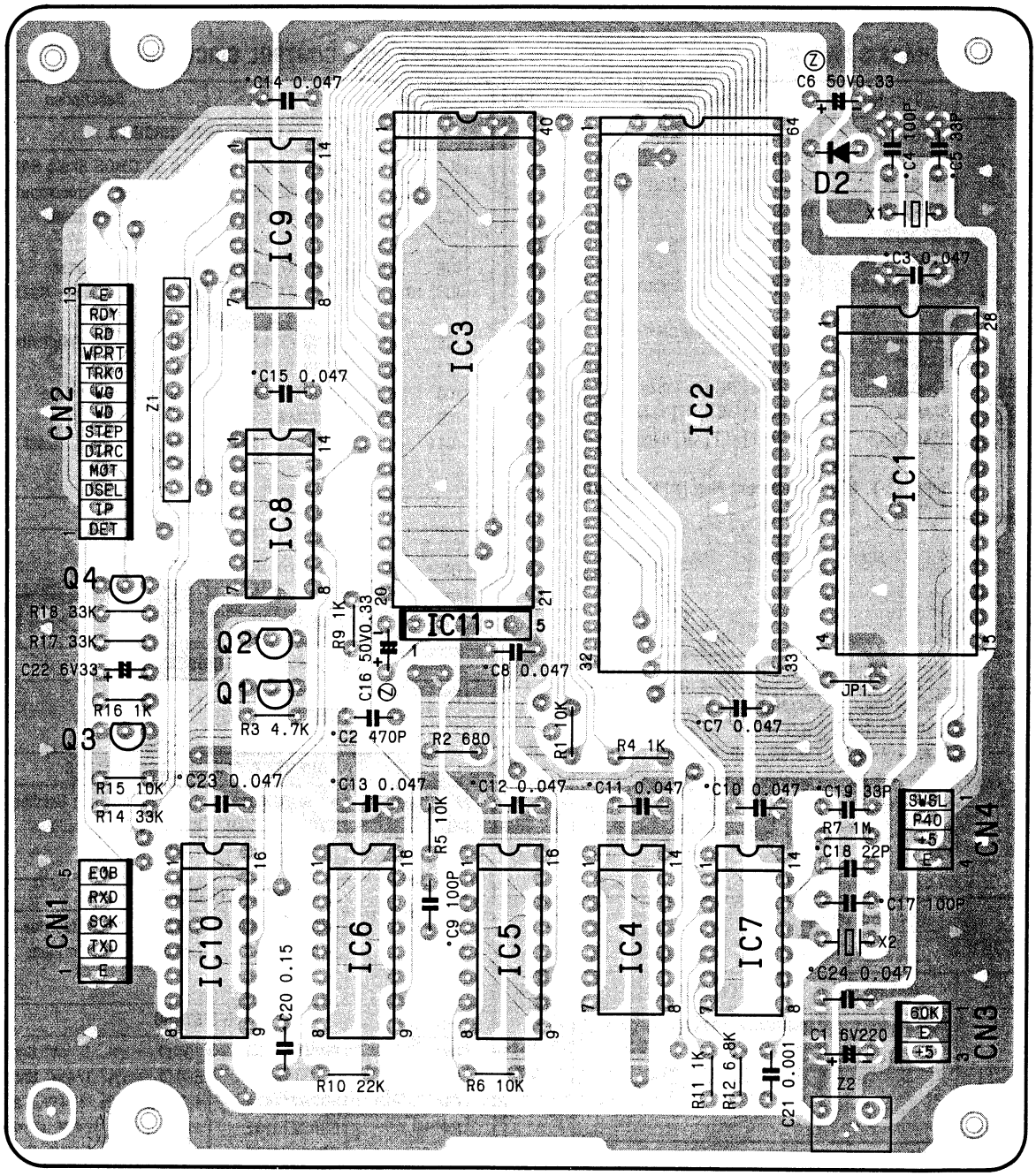
CN2 +5 E 60K

* JPⓐ: AC 220~240V Area
JPⓑ: AC 100~120V Area

4 5

■ FLOPPY DISK CONTROL CIRCUIT BOARD

FDC **SXPG130911**



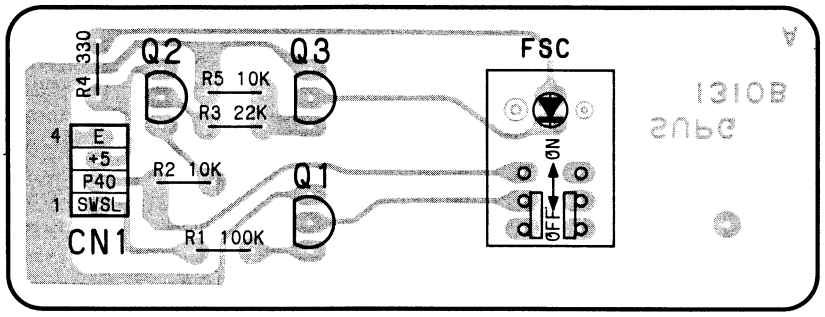
Circuit View on top of P.C.B.

NOTES:

- IC'S
  - IC1: SVIG6264LP15
  - IC2: MN15621PGL
  - IC3: SVIGM5W17930
  - IC4: SVIGM74LS393
  - IC5, 10: SVIGM74LS193
  - IC6: SVIGM74LS221
  - IC7: SVIGTC40H004
  - IC8: SVIGM74LS03
  - IC9: SVIGM74LS05
  - IC11: SVIGM51953A
- TRANSISTORS
  - Q1, 2: 2SC1047C
  - Q3: 2SA1015-GR
  - Q4: 2SC2320LFG
- DIODES
  - D2: MA165TA5
- QUARTZ & CERAMIC OSCILLATORS
  - X1: EF0A4R5M01A
  - X2: SVQG43U8000T
- COMPONENT COMBINATIONS
  - Z1: EXBP88102MM
  - Z2: EXATA223S

■ FSC SWITCH CIRCUIT BOARD

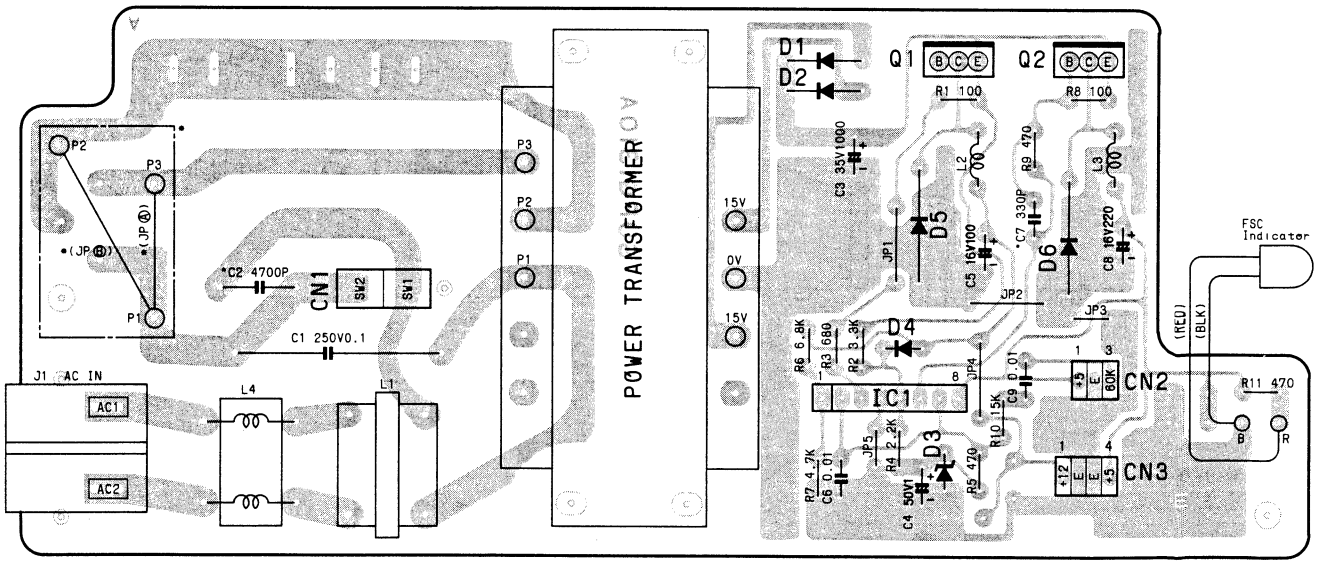
SW **SXPG131011B**



NOTES
- TRANSISTORS
  - Q1, 3: 2SC2320LFG
  - Q2: 2SA1015-GR
- DIODE
  - D1: SEL2710KLFM1

■ POWER SUPPLY CIRCUIT BOARD

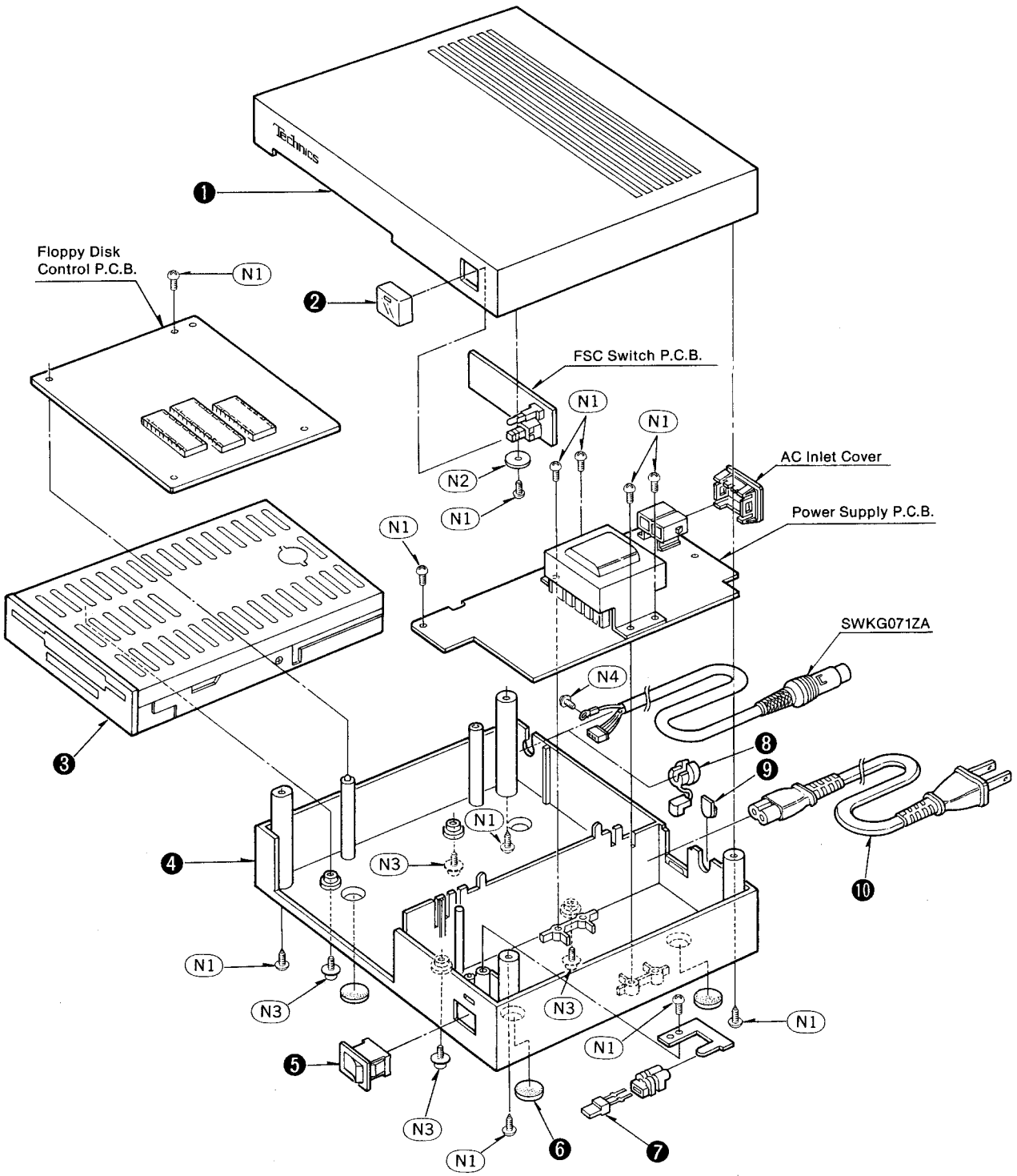
PS **SXPG131011A**



* JPⒶ: AC 220~240V Area
JPⒷ: AC 100~120V Area

NOTES
- IC
  - IC1: SVIGM51207L
- TRANSISTORS
  - Q1, 2: 2SB953AQP
- DIODES
  - D1, 2: SVDGSM1A02LF
  - D3: MA4051M
  - D4: MA165TA5
  - D5, 6: SVDGRK14
- LINE FILTER & COILS
  - L1: SLTGLF3
  - L2, 3: SLCG1A121T
  - L4: SLQG10W2D1

I EXPLODED VIEWS OF CABINET



REPLACEMENT PARTS LIST

Notes:
1. Printed circuit boards are supplied only during the period of production.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. ○ mark are new parts.
4. For part No. with area mark, check the area when placing an order.

■ CABINET AND CHASSIS PARTS

	Ref. No.	Part No.	Description	Per/Set
○	1	SKEG7470A	Top Case	1
	2	SBCG200G	FSC Button	1
○	3	SFDG10A	Floppy Disk Drive Unit	1
○	4	SKEG7480A	Bottom Case	1
○	5 ⚠	EST201B	Power Switch	1
○	6	SHGG3090A	Foot	4
○	7	SVDG26VR5F	LED (red), Power Indicator	1
	8	SHRG1160A	Cord Bushing	1
○	9	SHRG9670A	Spacer	1
	10 ⚠	SJAG41	AC Cord	1
	10 EK XS ⚠	SJAG39	AC Cord [EK] [XS] only	1
	10 MC XT ⚠	SJAG62	AC Cord [MC] [XT] only	1
	10 XL XR ⚠	SJAG40	AC Cord [XL] [XR] only	1
	⚠ X XX XV	SJP5213-1	Attachment Plug [X] [XX] [XV] only	1
	SCREWS & WASHERS			
	N1	XTV3+10G	Screw	11
	N2	XWG3E11FN	Washer	1
	N3	XYN3+F10FZS	Screw, with Washer	4
	N4	XYN3+F8S	Screw, with Washer	1

■ ACCESSORIES

	Ref. No.	Part No.	Description	Per/Set
○		SQFGA140	Instruction Book	1

■ PRINTED CIRCUIT BOARD

	Ref. No.	Part No.	Description	Per/Set
○		SXPG130911	Floppy Disk Control (FDC)	1
○		SXPG131011B	FSC Switch (SW)	1
○		SXPG131011A	Power Supply (PS)	1

■ FLOPPY DISK CONTROL CIRCUIT (FDC)

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	SVIG6264LP15	64K Bit CMOS Static RAM	1
	IC2	MN15621PGL	4 Bit 1 chip Microcomputer	1
	IC3	SVIGM5W17930	Floppy Disk Formatter/ Controller	1
	IC4	SVIGM74LS393	4 Bit Binary Counter	1
	IC5, 10	SVIGM74LS193	Synchronous Binary Up/Down counter	2
	IC6	SVIGM74LS221	Dual Monostable Multivibrator	1
	IC7	SVIGTC40H004	Hex Inverters	1
	IC8	SVIGM74LS03	Quadruple NAND Gate	1
	IC9	SVIGM74LS05	Hex Inverters	1
○	IC11	SVIGM51953A	Voltage Detection, Reset IC	1
	TRANSISTORS			
	Q1, 2	2SC1047C		2
	Q3	2SA1015-GR		1
	Q4	2SC2320LFG		1
	DIODES			
	D2	MA165TA5		1
	QUARTZ & CERAMIC OSCILLATORS			
	X1	EF0A4R5M01A	4.5MHz, Ceramic Oscillator	1
	X2	SVQG43U8000T	8MHz, Quartz Oscillator	1
	COMPONENT COMBINATIONS			
	Z1	EXBP88102MM	1KΩ×8, Block Resistor	1
	Z2	EXATA223S	Noise Suppression Filter	1
	RESISTORS			
	R1	ERDS2TJ103	10KΩ, ±5%, 1/4W, Carbon	1
	R2	ERDS2TJ681	680Ω, ±5%, 1/4W, Carbon	1
	R3	ERDS2TJ472	4.7KΩ, ±5%, 1/4W, Carbon	1
	R4	ERDS2TJ102	1KΩ, ±5%, 1/4W, Carbon	1
	R5, 6	ERDS2TJ103	10KΩ, ±5%, 1/4W, Carbon	2
	R7	ERDS2TJ105	1MΩ, ±5%, 1/4W, Carbon	1
	R9	ERDS2TJ102	1KΩ, ±5%, 1/4W, Carbon	1
	R10	ERDS2TJ223	22KΩ, ±5%, 1/4W, Carbon	1
	R11	ERDS2TJ102	1KΩ, ±5%, 1/4W, Carbon	1
	R12	ERDS2TJ682	6.8KΩ, ±5%, 1/4W, Carbon	1
	R14	ERDS2TJ333	33KΩ, ±5%, 1/4W, Carbon	1
	R15	ERDS2TJ103	10KΩ, ±5%, 1/4W, Carbon	1
	R16	ERDS2TJ102	1KΩ, ±5%, 1/4W, Carbon	1
	R17, 18	ERDS2TJ333	33KΩ, ±5%, 1/4W, Carbon	2

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
C1	ECEA0JU221	220μF, 6.3V, Electrolytic	1
○ C2	ECCR1H471J	470PF, 50V, Ceramic	1
○ C3	ECKR1E473ZV	0.047μF, 25V, Ceramic	1
○ C4	ECCR1H101J	100PF, 50V, Ceramic	1
○ C5	ECCR1H330J	33PF, 50V, Ceramic	1
ⓩ C6	ECEA50ZR33	0.33μF, 50V, Electrolytic	1
○ C7, 8	ECKR1E473ZV	0.047μF, 25V, Ceramic	2
○ C9	ECCR1H101J	100PF, 50V, Ceramic	1
○ C10～15	ECKR1E473ZV	0.047μF, 25V, Ceramic	6
ⓩ C16	ECEA50ZR33	0.33μF, 50V, Electrolytic	1
○ C17	ECCR1H101J	100PF, 50V, Ceramic	1
○ C18	ECCR1H220J	22PF, 50V, Ceramic	1
○ C19	ECCR1H330J	33PF, 50V, Ceramic	1
C20	ECQM1H154KV	0.15μF, 50V, Polyester	1
C21	ECQM1H102KV	0.001μF, 50V, Polyester	1
C22	ECEA0JU330	33μF, 6.3V, Electrolytic	1
○ C23, 24	ECKR1E473ZV	0.047μF, 25V, Ceramic	2

■ FSC SWITCH CIRCUIT (SW)

Ref. No.	Part No.	Description	Per/Set
TRANSISTORS			
Q1, 3	2SC2320LFG		2
Q2	2SA1015-GR		1
DIODES			
D1	SEL2710KLFM1	LED (Yellow)	1
SWITCH			
○	SSHG1041A	FSC Switch	1
RESISTORS			
R1	ERDS2TJ104	100KΩ ±5%, 1/4W, Carbon	1
R2	ERDS2TJ103	10KΩ ±5%, 1/4W, Carbon	1
R3	ERDS2TJ223	22KΩ ±5%, 1/4W, Carbon	1
R4	ERDS2TJ331	330Ω ±5%, 1/4W, Carbon	1
R5	ERDS2TJ103	10KΩ ±5%, 1/4W, Carbon	1

■ POWER SUPPLY CIRCUIT (PS)

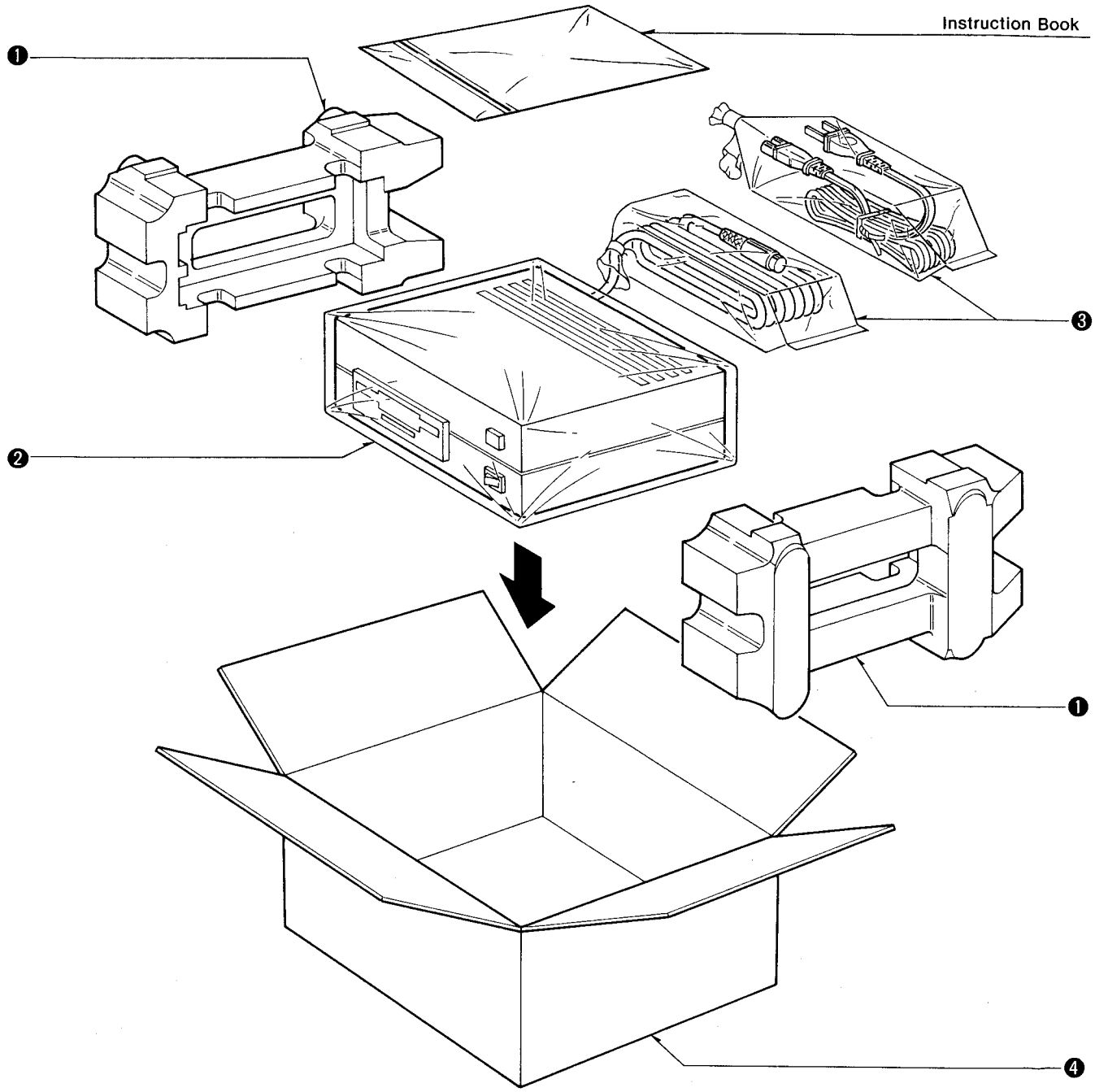
Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGM51207L	Dual Comparator	1
TRANSISTORS			
Q1, 2	2SB953AQP		2
DIODES			
D1, 2	SVDGSM1A02LF	Rectifier	2
D3	MA4051M	Zener	1
D4	MA165TA5		1
D5, 6	SVDGRK14		2

Ref. No.	Part No.	Description	Per/Set
LINE FILTER & COILS			
L1	SLTGLF3	Line Filter	1
L2, 3	SLCG1A121T	120μH	2
L4	SLQG10W2D1	10μH	1
POWER TRANSFORMER			
○	SLTG5K12		1
JACK			
○	SJVD0203B	AC Inlet	1
○	SJS9231A	AC Inlet Cover	1
RESISTORS			
R1	ERDS2TJ101	100Ω ±5%, 1/4W, Carbon	1
R2	ERDS2TJ332	3.3KΩ ±5%, 1/4W, Carbon	1
R3	ERDS2TJ681	680Ω ±5%, 1/4W, Carbon	1
R4	ERDS2TJ222	2.2KΩ ±5%, 1/4W, Carbon	1
R5	ERDS2TJ471	470Ω ±5%, 1/4W, Carbon	1
R6	ERDS2TJ682	6.8KΩ ±5%, 1/4W, Carbon	1
R7	ERDS2TJ472	4.7KΩ ±5%, 1/4W, Carbon	1
R8	ERDS2TJ101	100Ω ±5%, 1/4W, Carbon	1
R9	ERDS2TJ471	470Ω ±5%, 1/4W, Carbon	1
R10	ERDS2TJ153	15KΩ ±5%, 1/4W, Carbon	1
R11	ERDS2TJ471	470Ω ±5%, 1/4W, Carbon	1
CAPACITORS			
C1 ⚠	ECQU2A104MN	0.1μF, 250V, Line Capacitor	1
○ C2 ⚠	ECKCVA1472MF	4700PF, Line Capacitor	1
C3	ECEA1VU102	1000μF, 35V, Electrolytic	1
C4	ECEA1HU010	1μF, 50V, Electrolytic	1
C5	ECEA1CU101	100μF, 16V, Electrolytic	1
C6	ECQM1H103KV	0.01μF, 50V, Polyester	1
○ C7	ECCR1H331J	330PF, 50V, Ceramic	1
C8	ECEA1CU221	220μF, 16V, Electrolytic	1
C9	ECQM1H103KV	0.01μF, 50V, Polyester	1

■ WIRING PARTS (See wiring connection diagram on page 3.)

Ref. No.	Part No.	Description	Per/Set
○	SWKG071ZA	Connector with Wire	1
○	SWKG0229ZA	Connector with Wire	1
○	SWKG0230ZA	Connector with Wire	1
○	SWKG343ZA	Connector with Wire	1
○	SWKG0375ZA	Connector with Wire	1
	SWKG0441ZA	Connector with Wire	1
○	SWKG0481STA	Connector with Wire	1

PACKING



■ PACKING PARTS LIST

Ref. No.	Part No.	Description	Per/Set
○	SPNGFD5EA	Packing Parts Assembly	1
○ 1	SPNG5537A	Pad	(2)
○ 2	SPHG1300A	Polyethylene Bag	(1)
3	SPHG810A	Polyethylene Bag	(2)
○ 4	SPNG1627A	Carton Box	(1)